Navigation Economic Technologies NETS

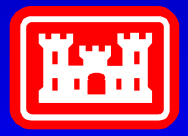
6-December, 2005

US Army Corps of Engineers

Institute For Water Resources - IWR

Presentation Themes

- Background
- Teaming
- Outreach
- Transition from Research to Development
- Independent Peer Review
- Accomplishments
- On-Going Work
- Next Steps



Background

- NETS started in FY2003 to develop additional economic analysis capabilities for deep draft and inland navigation.
- NETS is budgeted through FY09

Teaming

- NETS research focused on teaming with academia during first 1½ years.
- Today NETS is highly coordinated with the Inland and Deep Draft Navigation Planning Centers of Expertise:
  - IWN PCX - Wes Walker (Huntington)
  - DDN PCX - Ken Claseman (Mobile)
- Researchers: 7 Universities, Contractors, PCX personnel; HQUSACE and ASA personnel assist IWR with this task.

Outreach

- **Presentations**
  - Jan 2005 -- Transportation Review Board Annual Meeting
  - Feb 2005 -- Assistant Secretary of the Army (Woodley)
  - Apr 2005 -- NAS Upper Mississippi Review Team
  - May 2005 -- International Industrial Organization Conference
  - Jun 2005 -- UMR-IWW Economic Coordination Committee
  - Sep 2005 -- MARC 2000 Annual Meeting
- **Other Outreach**
  - **NETS web site and monthly news letter**
  - **NETS brochure**
  - **NETS table top display for conferences**

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Developing State-of-the-Art Tools and Techniques for Economic Modeling & Analyses to Help Meet Tomorrow's Navigation Challenges
The U.S. Army Corps of Engineers is committed to spending the nation's tax dollars wisely by investing in navigation projects that provide the best value for the dollar long term. The Navigation Economic Technologies (NETS) program supports this mission by developing independently-verified economic models, tools and techniques.
Our web site is designed to provide the latest information on the NETS team, the issues we are addressing, the approaches we are using and the status of our activities. The NETS bookshelf contains final reports and policy guidelines, while the toolbox holds final instruments, models, etc. that result from our research. For regular updates on our progress, sign-up for NETS News, a monthly e-newsletter delivered directly to your inbox.
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From Research to Development

- Mid-America Grain study: first successful effort to estimate "elasticity" or what we call shipper response.
- Rich Manguno is working to incorporate these results into an "Essence" type model – "The Survey Model"
  (This will give the Upper Miss team an "existing condition" model.)
- "Global Grain Flow Forecast Model" is completed and going through Independent Peer Review. Rich Manguno will incorporate the most likely scenario into the Survey Model.
  (*This will give the Upper Miss team a "without project future condition" model.)*
- We are working with the INW PCX to incorporate shipper response (elasticity) into the Navigation System Simulation Model.

Independent Peer Review

- Independent peer review process established for critical research:
  - List of subject-matter-experts is maintained by the contractor.
  - IWR submits the product and identifies the areas of expertise needed to evaluate the effort.
  - Contractor randomly selects SME(s), contracts for review, and manages the review.
  - Comments are submitted anonymously by contractor to IWR.
- The Mid-America Grain study was the first effort to be reviewed; several others since then.

Major Accomplishments

- 20+ papers presented/published at conferences and NETS web site.
- HarborSym widening analysis model released for field review/testing.
- Extension of HarborSym to include deepening analysis was initiated.
- Conducted surveys to estimate shipper response on Mississippi and Columbia. Initiated efforts to conduct surveys on the Ohio in FY06.
- Concluded studies on “Appointment Systems” and “Tradable Permits.”
- Published final draft of the Global Grain Flow Forecast Model. Global “spatial equilibrium” model as recommended by NAS.
- Completed Event studies of the Greenup and McAlpine closures.
- Advanced theory of transportation economics by publishing 3 theoretical papers.

Ongoing Work - 1

- Transferring research to Upper Mississippi River study team
- Navigation System Simulation Model – Design Document
- Container Forecasting Model – Existing Market and Flows
- Surveys: Ohio – Coal & Non-Coal; Miss – Grain & Non-Grain
- HarborSym deep draft development
- HarborSym training – Sponsored by the DDN PCX

  Jacksonville - Tampa Harbor; Galveston - Sabine-Naches Waterway
- Regional Routing Model
- NETS Symposium set for January 12-14, Salt Lake City

Ongoing Work - 2

- INW PCX's WAM: modified for ease of use; develop a users manual.
  (Only two people left in the Corp know how to use it.)
- Animation of Models: improves analyst's understanding of how model
  is working and facilitates analyst's communication with reviewers and stakeholders.
- Economics of Deep Draft Vessel Operations
  - Fleet Forecast
    - Global Insight
  - Vessel Load Factor Analysis
    - Better estimates of future vessel draft
  - Vessel Power and Bunkering Consumption Analysis
    - Currently limited to "at sea" & "at port"
  - Under-keel Clearance Verification
    - Teaming with ERDC CADET model

Next Steps - 1

- Work with Deep Draft Navigation PCX to certify HarborSym widening model
- Work with Inland Waterway Navigation PCX to incorporate shipper response in the ORNIM suite of tools with the goal of certifying the model
- Work with Inland Waterway Navigation PCX to develop the NaSS model
  - Teaming with ERDC to incorporate lock component reliability
- Evaluation of externalities (impacts) to the hinterland

Next Steps - 2

- Develop “corporate” forecasting models: for containers, petroleum and coal
  - This may include certifying a private sector model if appropriate
- Conduct additional event studies (Hannibal Lock and Dam)
- With the completion of the NaSS model we will be able to evaluate congestion pricing, lockage efficiency measures and alternative locking policies

Questions?